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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

10/696,853

10/30/2003

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95121961.207001

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7590

08/25/2004

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EXAMINER

WANG, GEORGE Y

ART UNIT

PAPER NUMBER

2871

DATE MAILED: 08/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/696,853

Applicant(s)

CHEN ET AL.

Examiner

George Y. Wang

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 May 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-84 is/are pending in the application.
- 4a) Of the above claim(s) 27-59 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-26 and 60-84 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election of Group I, Species 1 in the reply filed on May 20, 2004 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on October 30, 2003 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation

under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-12, 14-21, 23-26, 60-70, 72-79, and 81-84 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aritake et al. (U.S. Patent No. 6,478,429, hereinafter "Aritake") in view of Van De Witte et al. (U.S. 5,978,055, hereinafter "Van De Witte") and Gilmour et al. (U.S. Patent No. 6,122,028, hereinafter "Gilmour").

5. Regarding claims 1-3 and 60-61, Aritake discloses a projection system (fig. 2, ref. 20A) comprising a first panel (fig. 2, ref. 26R), a first light source (fig. 2, ref. 21) adjacent to the first panel, and a light-directing element (fig. 2, ref. 28) coupled to the first panel.

However, the reference fails to specifically disclose a positive first oblique anisotropic compensation element adjacent to the first panel that is configured to change a state off-normal incident light.

Van De Witte discloses a compensation element (title) for an LCD that has a positive anisotropy (col. 5, lines 64-66).

Gilmour discloses an LCD comprising a compensation element (fig. 7, ref. 31) position adjacent to the LC panel (fig. 7, ref. 32).

It would have been obvious to one ordinary skill in the art at the time the invention was made to have a first oblique anisotropic compensation element for an

LCD that has a positive anisotropy and is adjacent to the LCD panel since one would be motivated to avoid unfavorable alignment (Van De Witte, col. 2, lines 23-42).

Furthermore, the inclusion of a first oblique anisotropic compensation element for an LCD that has a positive anisotropy would be recognized by one of ordinary skill in the art to improve display performance, bright state efficiency, and optimized switching ability (Gilmour, col. 2, line 65 – col. 3, line 27).

6. Regarding claims 4-12 and 62-70, Aritake discloses a projection system as recited above with a second panel (fig. 2, ref. 26B) of another color, however, the reference fails to specifically disclose a second oblique anisotropic compensation element adjacent to the second panel that is configured to change a state off-normal incident light and having a positive or biaxial anisotropy and are splayed.

Van De Witte discloses a second compensation element (fig. 5, ref. 9b) for an LCD that has a positive anisotropy (col. 5, lines 64-66) or biaxial anisotropy (col. 1, lines 28-36) and where they are splayed (fig. 5, ref. 12, 12', 12'', 12''').

Gilmour discloses an LCD comprising a second compensation element (fig. 7, ref. 31) position adjacent to the second LC panel (fig. 7, ref. 32).

It would have been obvious to one ordinary skill in the art at the time the invention was made to have a first oblique anisotropic compensation element for an LCD that has a positive anisotropy and is adjacent to the LCD panel since one would be motivated to avoid unfavorable alignment (Van De Witte, col. 2, lines 23-42).

Furthermore, the inclusion of a first oblique anisotropic compensation element for an

Art Unit: 2871

LCD that has a positive anisotropy would be recognized by one of ordinary skill in the art to improve display performance, bright state efficiency, and optimized switching ability (Gilmour, col. 2, line 65 – col. 3, line 27).

7. Regarding claims 14 and 72, Aritake discloses a projection system as recited above where the light-directing element is an x-cube prism (fig. 2, ref. 28).

8. As to claims 15 and 73, Aritake and Van De Witte disclose a projection system as recited above, however, the references fail to specifically disclose a first compensation element that is optimized for maximum azimuth-averaged contrast.

Gilmour discloses an LCD projector with a first compensation element that is optimized for maximum azimuth-averaged contrast (col. 1, lines 10-15).

It would have been obvious to one ordinary skill in the art at the time the invention was made to have a first compensation element that is optimized for maximum azimuth-averaged contrast since one would be motivated to achieve improvement in achromatic performance (col. 1, lines 13-15). Furthermore, it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

9. Regarding claims 16 and 74, Aritake discloses a projection system as recited above where the panel is an LC panel (fig. 2, ref. 26R).

10. As per claims 17-21 and 75-79, Aritake discloses a projection system as recited above, however, the reference fails to specifically disclose a first anisotropic compensation element being a multilayer compensation element that includes polymeric LC material and a second compensation element on the same or opposite side of the first.

Van De Witte discloses a first anisotropic compensation element (title) being a multilayer compensation element (fig. 5, ref. 9a, 9b) that includes polymeric LC material (col. 1, lines 56-60) and the first and second compensation element on the same side of the first panel (fig. 1, ref. 9a, 9b).

Gilmour discloses an LCD projector where the first and second compensation element are on the opposite side of the first panel (col. 6, lines 61-65).

It would have been obvious to one ordinary skill in the art at the time the invention was made to have a first anisotropic compensation element being a multilayer compensation element that includes polymeric LC material and a second compensation element on the same or opposite side of the first since one would be motivated to avoid unfavorable alignment (col. 2, lines 23-42). Furthermore, one of ordinary skill in the art would be motivated to improve display performance, bright state efficiency, and optimized switching ability (col. 2, line 65 – col. 3, line 27).

11. As per claims 23-26 and 81-84, Aritake and Gilmour discloses a projection system as recited above, however, the reference fails to specifically disclose a first

panel and a first anisotropic compensation element on a common substrate where the first panel is a substrate and the first compensation element has a tilt angle of 0-50° and splayed relative to the first panel.

Van De Witte discloses a first panel and a first anisotropic compensation element on a common substrate (fig. 1, ref. 4) where the first panel is a substrate and the first compensation element has a tilt angle of 0-50° (col. 6, lines 21-24) and splayed relative to the first panel.

It would have been obvious to one ordinary skill in the art at the time the invention was made to have a first panel and a first anisotropic compensation element on a common substrate where the first panel is a substrate and the first compensation element has a tilt angle of 0-50° and splayed relative to the first panel since one would be motivated to achieve improvement in gray-scale inversion and to minimize axial symmetry (col. 6, lines 25-33). In addition, one would be motivated to avoid unfavorable alignment (col. 2, lines 23-42) and to improve display performance, bright state efficiency, and optimized switching ability (col. 2, line 65 – col. 3, line 27).

12. Claims 13 and 71 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aritake, Van De Witte, and Gilmour, in view of Sonehara et al. (U.S. 5,105,289, hereinafter "Sonehara").

Aritake et al. discloses a projection system as recited above, however, the reference fails to specifically disclose a micro-lens array adjacent to first panel.

Sonehara discloses an LCD projector with a micro-lens array adjacent to first panel (fig. 15, ref. 1504, 1505, 1506).

It would have been obvious to one ordinary skill in the art at the time the invention was made to have a micro-lens array adjacent to first panel since one would be motivated to reduce light loss, improve productivity and reliability, and optimize chromaticity (col. 3, lines 23-42).

13. Claims 22 and 80 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aritake, Van De Witte, Gilmour, and Sonehara, in view of Sekiguchi (U.S. 5,798,864).

Aritake et al. discloses a projection system as recited above, however, the reference fails to specifically disclose the first oblique anisotropic compensation element on the low f-number side of the micro-lens array.

Sekiguchi discloses a projection display where an oblique anisotropic compensation element is on the low f-number side of the micro-lens array

It would have been obvious to one ordinary skill in the art at the time the invention was made to have a micro-lens array adjacent to first panel since one would be motivated to reduce light loss, improve productivity and reliability, and optimize chromaticity (col. 3, lines 23-42).

Conclusion

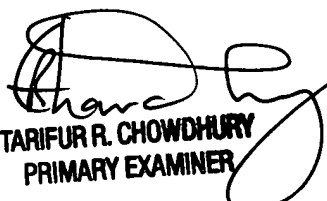
Art Unit: 2871

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to George Y. Wang whose telephone number is 571-272-2304. The examiner can normally be reached on M-F, 8 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H. Kim can be reached on 571-272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

gw
August 18, 2004


TARIFUR R. CHOWDHURY
PRIMARY EXAMINER